I. IN THE SPECIFICATION

1. Please correct the specification at 2:4, 3:37, 6:36, 6:42, 11:19 & 11:29 to reflect the proper capitalization for the term "Boolean."

2. Please delete the term "RAINBOWX" in the specification at 2:66, 3:46, 3:56 & 11:62.

3. Please delete the heading "A RAINBOWX LOGIC PROBLEM" in the specification at 10:62.

4. Please replace the term "case" with "housing" in the specification at 3:46.

5. Please replace the term "defining" with "define" in the specification at 3:48.

6. Please replace the phrase "where N denotes the number of colors" with the phrase "where N+1 denotes the number of colors" in the specification at 10:66.

7. Please insert the term "in the form of a lookup table" to the specification at 3:36 after the term "assignments."

8. Please replace the term "Planview" with "perspective view" in the specification at 3:45.

9. Please insert the following two statements in the specification at 5:6 after the term "square:"

> "These binary numbers are further assigned to the remaining playing positions on the playfield by virtue of the routing square configuration. As shown in FIGS 2a and 2b, respective to each playing position are four binary numbers assigned to top, right, bottom, and left playing positions."

10. Please replace the term "INCLUSIVE OR" with the term "EXCLUSIVE NOR" in the specification at 6:35.

11. Please insert the following statement in the specification at 7:57 after the term "DARK:"

"and the color visible to the player would be the external color reflected from the surface of the display.

12. Please insert the phrase "or the state of the associated routing square" in the specification at 6:8 after the term "switch," 6:10 after the term "switch," 7:3 after the term "switch," 7:6 after the term "switch," 7:28 after the term "switch," 7:31 after the term "switch," and at 7:34 after the term "switch."

13. Please insert the phrase "or the states of the routing squares" in the specification at 2:23 after the term "switches."

14. Please insert the following paragraph in the specification at 10:40:

It should be noted that while the above description of the operation of the preferred embodiment employs bi-stable switches to control the routing squares, a routing square could be activated by a keypad switch, i.e., momentary switch, to toggle it between its two states indicated in FIGS. 2a & 2b. In such a case, the states of a routing square, rather than the states of the bi-stable switch, are used to provide the various functions described for the preferred embodiment.

15. Please insert the following paragraph in the specification after the new paragraph inserted in 14 above:

"It should also be noted that the number of colors or images playable by a device is a design choice. The color codes in the 4x4 embodiment could be assigned to any pre-defined number of visual indications, i.e., to any pre-defined images or colors, including the color reflected from the surface of a display when it is dark. For the 4x4 embodiment, a person with ordinary skills in the art could employ such assignment to operate the device with 2, 3, 4, or 5 colors or images. Similarly, for the 8x8 embodiment, the number of colors or images could vary from 2 to 9."

16. Please insert the phrase "in addition to the color reflected from the surface of the sub-squares when all the displays are 'dark'" in the specification at 13:8 after the term "game."

The above listed proposed amendments are reflected in the following amended paragraphs of the specification:

(i) Please amend the paragraph in the specification at 1:67 as follows:

Thus the present invention relates to an electronic game comprising means for generating electrical operating codes, a plurality of electrical switches to control the routing of operating codes within the device, means to route or simulate the routing of operating codes within the device, means to implement a logic [[b]]Boolean function to generate color codes from pairs of operating codes, means to distribute color codes to multi-color displays, and plurality of multi-color light emitting means to provide multi-color displays.

(ii) Please amend the paragraph in the specification at 2:17 as follows:

The present invention also relates to the method of solving the logic problem herein, comprising the definitions of the Routing Square and associated binary switches, designating a color to each predetermined subset of pairs of objects, causing the color associated with each subset to be displayed at multi-color displays according to the position of binary switches, or the states of the routing squares, and observing said color displays for different combinations of said switches whereby a combination associated with one subset may be discovered.

(iii) Please amend the paragraph in the specification at 2:65 as follows:

FIG.1 is a geometric representation of the preferred embodiment for the [[~~RAINBOWX~~]] Logic Game.

(iv) Please amend the paragraph in the specification at 3:35 as follows:

FIGS. 23 and **24** provide proposed operating code and color code assignments, in the form of a lookup table, using the "EXCLUSIVE OR" B[[b]]oolean function for four and eight color games respectively.

(v) Please amend the paragraph in the specification at 3:42 as follows:

Referring now to the drawings where the illustrations are for the purpose of describing the preferred embodiment of the invention and are not intended to limit the invention hereto, **FIG. 3** is a

front [[~~plainview~~]] perspective view of an electronic [[~~RAINBOWX~~]] device **10** comprised of a [[~~case~~]] housing **12** having a face **14** and carrying an array of individually-operable multi-color lighted switches **22** which [[~~defining~~]] define a field of play. In a specific embodiment illustrated in **FIG. 3**, an array of four rows and four columns defines a field of play having sixteen individually-operable multi-color lighted switches which may be referred to as **22-1** through **22-16**; each row being numbered from left to right and from top to bottom.

(vi) Please amend the paragraph in the specification at 3:55 as follows:

A block diagram of the control circuitry for this [[~~RAINBOWX~~]] device **10** is illustrated in **FIG. 4**. This control circuitry includes a central processing unit **30** having a control program memory **32** associated therewith, a read only memory (ROM) **32**, a random access memory (RAM) **34**, a plurality of interface and coding devices **38**, **40**, **42** and a plurality of memory decoder drivers **36**, **44**, **48**. The interface and coding devices **38**, **40**, **42** are used as input interface between the multi-color lighted switches and control push buttons with the central processing unit **30**. As such, interface and coding device **38** is associated with level selector switch **18**; interface and coding device **40** is associated with sixteen (16) multi-color lighted switches; and interface and coding device **42** is associated with the new game selector switch. In contrast, the memory decoder device **36** is used as an output interface between the central processing unit **30** and the multi-color displays. A common address and control bus **52**, and a separate common data bus **50** are used to interconnect the central process unit **30** with the interface and coding devices **38**, **40**, **42**, the memory decoder drivers **36**, **44**, **48**, the read only memory (ROM) **32**, and the random access memory (RAM) **34**.

(vii) Please amend the paragraph in the specification at 4:38 as follows:

Referring again to **FIG. 4**, in order to operate the device, the player moves the off-on switch **16** from the "off" position to the "on" position which causes power to be supplied to all terminals of

the device **10** from either a battery **62** or some external power source and which causes a pulse generator **64** to generate a reset pulse. This pulse is applied to the central processing unit **30** and causes the central processing unit **30** to clear any data remaining in the RAM **34** and in the memory decoder drivers **36, 44** over the common data bus **50**. The pulse also causes the central processing unit **30** to generate four (4) sets of random numbers. Each of said sets of random numbers comprises four (4) distinct decimal numbers from 1 to 4, and each of said distinct decimal numbers corresponds to a location (1 to 4) at an edge of the geometric square described in **FIG. 1** such that the first set of random numbers corresponds to the four locations at the left edge of the square, the second set of random numbers corresponds to the four locations at the bottom edge of the square, the third set of random numbers corresponds to the four locations at the top edge of the square and the fourth set of random numbers corresponds to the four locations at the right edge of the square. The central processing unit **30** also assigns the four binary numbers 000, 001, 010 and 011 to the four locations at the left edge of the square such that the binary number 000 is assigned to the location identified by the first decimal number of the first random set, the binary number 001 is assigned to the location identified by the second decimal number of the first random set, etc. Similarly, the four binary numbers 100, 101, 110 and 111 are assigned to the four locations at the bottom edge of the square, the four binary numbers 000, 001, 010 and 011 are assigned to the four locations at the top edge of the square, and the four binary numbers 100, 101, 110 and 111 are assigned to the four locations at the right edge of the square. These binary numbers are further assigned to the remaining playing positions on the playfield by virtue of the routing square configuration. As shown in **FIGS 2a** and **2b**, respective to each playing position are four binary numbers assigned to top, right, bottom, and left playing positions. Next, the level selector switch **18** through the interface and coding device **38** accesses the central processing unit **30** over the address

and control bus **52** and a signal is transmitted thereto via the data bus **50**. The central processing unit **30** identifies the level of difficulty, i.e., the position of the level selector switch **18**, and through its control program **32** rearranges switch positions **22-1** through **22-16** and/or multi-color display positions **24-1** through **24-16**, such that if the level selector switch **18** is set to either "2" or "4", the central processing unit **30** generates a set of random numbers which comprises sixteen (16) distinct decimal numbers from 1 to 16, and each of said decimal numbers corresponds to each of the actual positions of switches **22-1** through **22-16**, such that if the player activates the switch located at position **22-x**, it will appear to the device that the switch located at position **22-y** has been activated wherein **y** is the random decimal number which corresponds to the actual switch position **x**. Similarly, if the level selector switch **18** is set to either "3" or "4", the central processing unit **30** generates a different set of random numbers which also comprises sixteen (16) distinct decimal numbers from 1 to 16, and each of those decimal numbers corresponds to each of the actual positions of multi-color displays **24-1** through **24-16**, such that if the control program **32** determines that the multi-color display located at position **24-z** should be activated, the central processing unit **30** will activate the multi-color display located at position **24-w**, and it will appear to the player that the display located at position **24-w** has been activated where in **w** is the random decimal number which corresponds to the actual display position **z**. At any time during the course of a game, the player may change the position of the level selector switch **18**, however, only two (2) sets of random numbers are generated by the central processing unit **30** for each single game (one set for apparent switch positions and a second set for apparent display positions). At all times during the course of a single game, the central processing unit **30** stores the current position of the level selector switch **18** in RAM **34**, identifies any new position of said switch, and through its control program **32** rearranges or restores the positions of switches **22-1** through **22-16** and/or rearranges or restores the

positions of multi-color displays **24-1** through **24-6**, as the case may be, and as fully illustrated in flow diagram form in **FIG. 6**.

(viii) Please amend the paragraph in the specification at 5:53 as follows:

To determine the initial status of all switches **22-1** through **22-16**, the central processing unit **30** accesses each of said switches over the address and control bus **52** and interface and coding device **40** causing a signal to be transmitted thereto via the data bus **50**. The central processing unit **30** identifies the status of the switch, i.e., if the switch is in the "ON" ("1") or "OFF" ("0") position. The central processing unit **30**, through its control program **32**, identifies the RAM memory address which corresponds to the switch and accesses this memory address over the address control bus **52**. The central processing unit **30** then transfers the data on the status of the switch to said RAM memory address over the data bus **50**. After the initial status of all switches is stored in RAM **34**, the central processing unit **30** through its control program **32** identifies an opcode receiver "R" for each opcode transmitter "T". As illustrated in the flow diagram of **FIG. 19**, the control program **32** first determines if transmitter "T" is located at either the left edge or the bottom edge of the square, then it determines the location of the first switch adjacent to said transmitter "T". Starting at this location, the control program **32** traces an internal route within the square by using the status of said first switch, or the state of the associated routing square, to determine the location of the second switch on the route. The status of the second switch, or the state of the second routing square, is then used to determine the location of the third switch on the route, etc. The foregoing process continues until this internal route terminates at an opcode receiver "R" located at either the top edge or the right edge of the square. The central processing unit **30** through its control program **32** causes the locations of transmitter "T" and associated receiver "R" to be stored in RAM **34**.

(ix) Please amend the paragraph in the specification at 6:18 as follows:

After the locations of all opcode transmitters and associated opcode receivers are stored in RAM **34**, the central processing unit **30**, through its control program **32**, generates a color code at each opcode receiver. As illustrated in the flow diagram of **FIG. 20**, the central processing unit **30**, through its control program **32**, identifies the transmitter associated with the receiver at location "1" by accessing the RAM **34** over the address and control bus **52** causing the identity of said transmitter to be transmitted to the central processing unit **30** via the data bus **50**. The central processing unit **30**, under the instruction of the control program **32**, then accesses the RAM **34** over the address and control bus **52** to obtain the two opcodes assigned to receiver "1" and its associated transmitter. The RAM **34** then forwards said two opcodes over the data bus **50** to the central processing unit **30**. To generate the color code at receiver "1", the central processing unit **30** executes the [[~~"INCLUSIVE OR"~~]] "EXCLUSIVE NOR" [[b]]Boolean function on the third (left) digit of the opcode assigned to receiver "1" and the third (left) digit of the opcode assigned to the transmitter associated with receiver "1", to compute the third (left) digit of said color code. Similarly, the first and second digits of the color code are computed from the opcodes using the "EXCLUSIVE OR" [[b]]Boolean function. The central processing unit **30** then causes said color code at receiver "1" to be stored in RAM **34**. The foregoing processing continues until all eight (8) color codes at the eight (8) opcode receivers are computed and stored in RAM **34**.

(x) Please amend the paragraph in the specification at 6:48 as follows:

The central processing unit **30**, through its control program **32**, then identifies the locations of the multi-color displays connected to each opcode receiver and assigns the color code generated at the receiver to either the top edge or the right edge of the routing square associated with each multi-color display connected to said opcode receiver. As illustrated in the flow diagram of **FIG. 21**, for each receiver "R", the control program **32** first determines if the receiver "R" is located at

either the top edge or the right edge of the square, then it determines the location of the first switch and multi-color display adjacent to said receiver "R". If "R" is located at the top edge of the square, the central processing unit **30**, through its control program **32**, assigns the color code generated at receiver "R" to the top edge of the routing square associated with the first multi-color display. Alternatively, if "R" is located at the right edge of the square, the central processing unit **30**, through its control program **32**, assigns the color code generated at the receiver "R" to the top edge of the routing square associated with the first multi-color display. Starting at this location of first multi-color display, the control program **32** traces an internal route within the square by using the status of the first switch, or the state of the associated routing square, to determine the location of the second switch and multi-color display on the route. The status of the second switch, or the state of the corresponding routing square, is then used to determine the location of the third switch and multi-color display on the route, etc. The foregoing process continues until this internal route terminates at either the left edge or the bottom edge of the square. While this is occurring, the central processing unit **30** also assigns the color code generated at receiver "R" to either the top edge or the right edge of the routing square associated with each multi-color display on the route. The central processing unit **30**, under the instruction of the control program **32**, then causes the color codes assigned to either the top edge or the right edge of the routing square associated with each multi-color display on the route to be stored in RAM **34**. The foregoing operation is employed to identify all display routes within the square and to assign two color codes to each multi-color display.

(xi) Please amend the paragraph in the specification at 7:22 as follows:

The central processing unit **30**, through its control program **32**, then selects a color code to activate each of the sixteen (16) multi-color displays. As illustrated in the flow diagram of **FIG. 22**, for the multi-color display associated with the routing square located at row I and column J of the

geometric square described in **FIG. 1**, the control program uses the status of the switch, or the state of the associated routing square, also located at row I and column J, to determine the color to be forwarded to this multi-color display, such that if the status of said switch, or the state of the associated routing square, is "0", then the color code assigned to the top edge of the routing square is forwarded to the multi-color display, and if the status of said switch, or the state of the associated routing square, is "1", then the color code assigned to the right edge of the routing square is forwarded to the multi-color display. The central processing unit **30** also causes the selected color code to be stored in RAM **34**. The foregoing process continues until all sixteen (16) selected color codes are stored in RAM.

(xii) Please amend the paragraph in the specification at 7:40 as follows:

In order to activate the multi-color displays, the central processing unit **30**, through its control program **32**, identifies the selected color codes addresses in RAM **34**, and over the address and control bus **52** accesses said RAM addresses. The RAM **34**, in turn, transfers color codes data over the data bus **50** to the memory decoder driver **36** via the central processing unit **30**. The memory decoder driver **36**, in turn, activates each of the sixteen (16) multi-color displays such that if the first (left) digit of the selected color code equals to "1", then if the second and third digits equal to "00", then the display will indicate "RED"; if the second and third digits equal to "01", then the display will indicate "YELLOW"; if the second and third digits equal to "10", then the display will indicate "GREEN" and if the second and third digits equal to "11", then the display will indicate "BLUE". Alternatively, if said first digit equals to "0", then the display will be "DARK," and the color visible to the player is the external color reflected from the surface of the display.

(xiii) Please insert the following two new paragraphs in the specification at 10.40:

It should be noted that while the above description of the operation of the preferred embodiment employs bi-stable switches to control the routing squares, a routing square could be activated by a keypad switch, i.e., momentary switch, to toggle it between its two states indicated in **FIGS. 2a & 2b**. In such a case, the states of a routing square, rather than the states of the bi-stable switch, are used to provide the various functions described for the preferred embodiment.

It should also be noted that the number of colors or images playable by a device is a design choice. The color codes in the 4x4 embodiment could be assigned to any pre-defined number of visual indications, i.e., to any pre-defined images or colors, including the color reflected from the surface of a display when it is dark. For the 4x4 embodiment, a person with ordinary skills in the art could employ such assignment to operate the device with 2, 3, 4, or 5 colors or images. Similarly, for the 8x8 embodiment, the number of colors or images could be 2 to 9.

(xiv) Please amend the heading at 10:60, and the paragraph in the specification at 10:64 as follows:

MATHEMATICAL DESCRIPTION OF THE LOGIC PROBLEM [[~~A RAINBOWX LOGIC PROBLEM~~]]

Let the logic game herein be represented by a geometric square, and let the surface of the square be subdivided into N^2 multi-color sub-squares, where N+1 denotes the number of colors, which may be displayed on any sub-square.

(xv) Please amend the paragraph in the specification at 11:18 as follows:

Let M_k be a subset of M, of all pairs (d_i, d_j) which satisfy; $B(d_i, d_j) = c_k$, where B is an appropriate [[b]]Boolean function.

(xvi) Please amend the paragraph in the specification at 11:28 as follows:

The color assignments for the "EXCLUSIVE OR" [[b]]Boolean function, and for N = 4 & N = 8 are shown in **FIGS. 23** and **24** respectively.

(xvii) Please amend the heading in the specification at 11:62 as follows:

Definition Of A [[~~Rainbowx~~]] Logic Game

(xviii) Please amend the paragraph in the specification at 13:5 as follows:

7. By changing the positions of the binary switches, the player can continue to play the game until a different color is displayed on all sub-squares. A total of N colors can be displayed in each game, in addition to the color reflected from the surface of the sub-squares when all the displays are "dark."